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CO-OPERATIVE INVESTIGATIONS IN NINTH-GRADE ENGLISH

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During the Summer Quarter of the University of Chicago, 1918, seventy-five students in classes studying the Teaching of English agreed to undertake with colleagues in their home schools a series of co-operative investigations. A few schools not represented in the summer session were invited to join the investigators. A committee of the class planned to send from a central office material for identical tests to be given in all the schools. In all 93 teachers, 127 classes, and 2,921 pupils from 59 schools were able to complete the undertaking in whole or in part, and are represented in one or more of the tabulations made in this article.

The co-operators agreed that no comparisons of results should be made by names of teachers, of pupils, or of schools. Each school is therefore given an index number in the tables. Each co-operator is sent his index number that he may learn the comparative standing of his classes.¹

¹ High schools represented by one or more ninth-grade classes: Aberdeen, S.D. (Northern Industrial); Amboy, Ill.; Arkadelphia, Ark.; Audubon, Iowa; Baltimore, Md. (Western); Beatrice, Neb.; Belmont, Iowa; Beloit, Wis.; Boston, Mass. (Windsor School); Chapman, Kan., Charleston, Miss.; Cincinnati, Ohio (Hughes); Chicago, Ill. (University High); College View, Neb.; Duluth, Minn.; Fort Madison, Iowa; Garnett, Ind.; Hays, Kan.; Highland Park, Ill.; Hoopston, Ill.; Indianapolis, Ind. (Arsenal Technical); Kalamazoo, Mich.; Kansas City, Mo. (North East); LaGrange, Ill.; Las Cruces, N.M.; Leaf River, Ill.; Leavenworth, Kan.;

MATERIALS AND DIRECTIONS

Conferences of co-operators led to the conclusion that the first investigations ought to be comparatively simple in nature, easy to give and to score. At the same time it was felt that energy ought to be expended only on data of comprehensive and universal interest, and that it should be arranged in such form that other teachers might easily carry on the comparisons in their own work. With these considerations in mind the co-operators decided to begin with three simple tests in language mechanics. Two of these are in spelling, and one covers elementary knowledge in capitalization, punctuation, grammar, and syntax.

Throughout this article the three tests are called respectively the "Jones Test," the "Ayres Test," and the "Noyes Test." Of these the first is the well-known list of Jones's *One Hundred Spelling Demons*. Professor W. F. Jones, of the University of South Dakota, tabulated the misspellings in 15,000,000 words of written compositions of 1,050 pupils in Grades II-VIII inclusive. Jones says that in this list are included nine-tenths of all the misspelled words of the 1,050 pupils. Moreover, Jones affirms that words which give the greatest difficulty in the lower-grade papers almost invariably reappear throughout the upper grades. The purpose of the present test is to throw further light upon the question: Can our ninth-grade pupils as they enter our high schools spell these demons of the grades?

The Ayres Test, 25 words more difficult than the words of average difficulty in the Jones list, selected from Ayres Spelling Scale, is a test which has recently been given in several high

Louisburg, Kan.; Lyons, Kan.; Madison, Wis. (Randall); Manchester, Iowa; Miami, Fla.; Middleton, Ohio; Mount Vernon, Iowa; Muskogee, Okla.; New Britain, Conn.; Norwalk, Ohio; Oak Park, Ill.; Omaha, Neb. (Central); Oregon, Ill.; Oskaloosa, Iowa (Penn); Oshkosh, Wis.; Ossian, Ind.; Quincy, Ill.; Rock Island, Ill.; Rushville, Ind.; Shawnee, Okla.; Siballsville, Md.; Sioux City, Iowa; Solvay, N.Y.; Stirling, Colo.; St. Joseph, Mich.; Trenton, N.J. (Junior High); Tulsa, Okla.; Vevay, Ind.; Waterloo, Iowa; Wellington, Ill.; Wilmette, Ill.

schools of Chicago and vicinity. It is given here for two reasons: to compare our results with the Chicago results, and to compare them with the estimates of accuracy as given in the Ayres Scale for Grades VII and VIII from which the words were taken.

The Noyes Language Test was prepared by Miss E. Louise Noyes, of Highland Park, Illinois, High School, for use in her own work. It is based quite largely upon *The Manual of Usage* prepared by the English Department of the University High School, Chicago.

THE JONES SPELLING LIST

In the Jones Test 2,921¹ pupils in fifty-eight schools participated. Teachers were asked to pronounce each word twice, to explain homonyms briefly, and to allow ten seconds for writing each word, not mentioning the time. Accompanying is the list of one hundred words arranged in the order of frequency of misspelling by 2,887 of the entire group. Data give the number of times each word was misspelled and the percentage of the total number of pupils misspelling each word.

Jones found that the three words bearing the distinction of being the most frequently misspelled by pupils of Grades II-VIII are "which," "their," and "there," and concluded that "these words are apparently the arch demons of English spelling." The Ayres Spelling Scale assumes that "which" will be spelled by eighth-grade children in the average American city with 98 per cent accuracy; "their" with 96 per cent accuracy, and "there" with 100 per cent accuracy. The ninth-grade children of the present study have apparently come up to Ayres's expectation with respect to "which" with 98 per cent accuracy; their score for "their" is 90.2 per cent accuracy as compared with Ayres's expectancy of 96; their

¹ In Table I and Figure I which follow the discrepancy in total number of pupils is explained by the fact that a few schools sent data which enabled them to appear in certain computations and not in others.

JONES SPELLING LIST MISSPELLINGS BY 2,887 NINTH-GRADE PUPILS*

No.	Word	Misspellings	Percentage of Pupils Misspelling	No.	Word	Misspellings	Percentage of Pupils Misspelling
1..	separate	716	24.8	32..	among	194	6.7
2..	February	616	21.4	33..	can't	190	6.6
3..	meant	612	21.2	34..	there	187	6.5
4..	tear	609	21.1	35..	cough	184	6.4
5..	lose	592	20.5	36..	wear	184	6.4
6..	whether	547	18.9	37..	tired	184	6.4
7..	beginning	532	18.4	38..	guess	177	6.1
8..	ache	448	15.5	39..	since	174	6.0
9..	writing	445	15.4	40..	whole	163	5.6
10..	hoarse	429	14.9	41..	seems	162	5.6
11..	coming	406	14.1	42..	sure	161	5.5
12..	piece	399	13.8	43..	don't	160	5.5
13..	loose	390	13.5	44..	though	159	5.5
14..	business	379	13.1	45..	Tuesday	148	5.1
15..	won't	362	12.5	46..	through	145	5.0
16..	too	353	12.3	47..	hear	133	4.6
17..	Wednesday	350	12.2	48..	knew	132	4.6
18..	tonight	338	11.7	49..	two	127	4.4
19..	laid	324	11.2	50..	color	126	4.4
20..	believe	313	10.9	51..	friend	121	4.2
21..	grammar	311	10.8	52..	says	118	4.1
22..	their	283	9.8	53..	know	116	4.0
23..	forty	281	9.7	54..	weak	114	3.9
24..	choose	278	9.6	55..	write	105	3.6
25..	truly	271	9.4	56..	often	102	3.5
26..	straight	256	8.9	57..	once	101	3.5
27..	minute	240	8.3	58..	does	101	3.5
28..	doctor	239	8.3	59..	trouble	99	3.4
29..	women	238	8.2	60..	shoes	98	3.4
30..	break	203	7.0	61..	raise	98	3.4
31..	busy	200	6.9	62..	here	97	3.3

* Certain classes are scored in later tables whose records do not appear in these figures. In this list are included certain classes not represented in Table I and Fig. 1.

THE JONES SPELLING LIST—*Continued*

No.	Word	Mis-spellings	Percentage of Pupils Misspell-ing	No.	Word	Mis-spellings	Percentage of Pupils Misspell-ing
63..	half	97	3.3	82..	any	49	1.7
64..	blue	96	3.3	83..	would	48	1.7
65..	answer	92	3.2	84..	none	48	1.7
66..	been	88	3.0	85..	instead	47	1.6
67..	buy	88	3.0	86..	wrote	43	1.5
68..	some	73	2.5	87..	could	43	1.5
69..	having	70	2.4	88..	read	40	1.4
70..	making	67	2.3	89..	dear	40	1.4
71..	always	65	2.2	90..	much	40	1.4
72..	heard	65	2.2	91..	many	39	1.4
73..	used	63	2.2	92..	sugar	39	1.4
74..	again	62	2.1	93..	early	37	1.3
75..	enough	62	2.1	94..	easy	37	1.3
76..	country	58	2.0	95..	ready	33	1.2
77..	which	58	2.0	96..	where	31	1.1
78..	said	57	1.9	97..	every	31	1.1
79..	very	57	1.9	98..	just	29	1.0
80..	hour	54	1.8	99..	done	27	.9
81..	built	52	1.8	100.	they	15	.5

score for "there" is only 94.5 per cent as compared with an expectancy of 100 per cent. Each of the first twenty-five words appears to have an obvious "catch" or "critical difficulty," readily explaining the trouble children have with it. Several of these first twenty-five words in the Jones list appear in the Ayres Scale with accuracy estimates ranging from 73 per cent to 94 per cent for children in the eighth grade of the average American city; for example, "separate," 73; "February," 73; "meant," 84; "lose," 94; "whether," 84; and "beginning," 84 per cent.

WEIGHTED SPELLING TESTS

The distribution of errors for the various words on the part of nearly 3,000 ninth-grade pupils indicates that from the *One Hundred Demons* separate spelling tests of quite different relative difficulty might be determined. List I, words 1-25, most frequently misspelled, has a median difficulty of 13.6. List II, words 26-50, a median of 6.4; List III, words 50-74, a median difficulty of 3.3; and List IV, words 76-100, a median difficulty of 1.6. That is, a test of List I is much more difficult than a test of List IV. A child who passes a test in List I with a grade of 87 is entitled to as much credit as a child who passes Test II with a grade of 93, to as much credit as a pupil who stands 96 in Test III, or as one who stands 98 in Test IV.

Very infrequently in spelling examinations, as distinguished from tests, is any such distinction made. Wrongly is a word regarded as a word possessing equal difficulty with any other word. This error has frequently been pointed out.¹ Various groups of teachers are working co-operatively to establish the relative difficulty of the words in minimal lists used by various grades and to compile a definite series of weighted spelling tests. Such are the Ayres, the Buckingham, and other lists. A recent valuable contribution in this direction has been made by the teachers of Detroit public schools, entitled, *A Tentative Course of Study in Spelling*.

If it be said that any such lists soon lose their validity as tests because teachers drill their pupils to pass them, the reply is obvious. Pupils so instructed will have mastered their spelling demons. Ayres uses the one thousand words appearing most frequently in everyday communication. Moreover, the fact of the relative difficulty of the various lists and their validity in scientific testing would remain, even if certain groups of pupils were taught especially to master them.

¹ See B. R. BUCKINGHAM, *Spelling Ability, Its Measurement and Distribution*, p. 2; LEONARD P. AYRES, *A Measuring Scale for Ability in Spelling*, p. 23.

Table I shows the ranking by schools in the Jones list. Schools are indicated by index numbers appearing in the first column; each school retains the same index number throughout all the tables which follow. The second column gives by schools the number of pupils participating; the third indicates the average score by schools in terms of arithmetic mean reduced

TABLE I
RANKING BY SCHOOLS IN THE JONES TEST; 2,921 PUPILS

School	Number Pupils	Average	Median	Median Rank	School	Number Pupils	Average	Median	Median Rank
1....	43	94.5	91.6	51	31....	17	94.2	96.8	17
2....	52	94.9	94.9	40	32....	88	91.6	95.7	30
3....	47	90.1	89.9	54	33....	19	95.7	97.0	11
4....	26	91.0	91.5	52	34....	7	95.4	98.0	5
5....	39	96.5	97.0	11	35....	46	93.8	96.1	25
6....	17	94.7	96.0	26	36....	31	82.6	90.3	53
7....	28	93.5	95.8	28	37....	59	92.9	95.0	37
8....	58	93.5	.....	.....	38....	58	93.7	95.5	33
9....	51	94.6	95.6	31	39....	106	93.7	96.9	15
10....	39	92.2	95.0	37	40....	299	96.2	98.0	5
11....	59	96.6	98.5	2	41....	20	95.5	96.0	26
12A...	137	96.1	96.9	15	42....	109	94.5	96.5	21
12B...	40	95.5	96.5	21	43....	62	91.9	94.7	43
13....	79	90.6	.....	.....	44....	29	90.0	.....	.....
14....	93	97.2	98.2	3	45....	40	97.4	98.0	5
15....	109	96.1	97.3	10	46....	97	93.8	94.2	44
16....	23	90.5	93.7	45	47....	27	92.5	94.8	42
17....	21	92.9	93.7	45	48....	46	92.3	95.2	36
18....	73	92.6	93.4	48	49....	60	93.8	95.8	28
19....	53	93.6	94.9	40	50....	27	95.3	97.6	9
20....	36	95.5	96.5	21	51....	15	83.8	89.3	55
21....	26	90.7	93.5	47	52....	22	96.8	93.1	49
22....	22	94.5	96.3	24	53....	88	95.6	97.9	8
24....	35	96.0	96.7	20	54....	53	98.1	99.0	1
25....	32	93.8	96.8	17	55....	14	95.0	95.5	33
26....	26	91.6	95.0	37	56....	52	96.9	95.5	33
27....	25	87.4	86.4	56	57....	40	96.5	96.8	17
28....	47	92.9	95.6	31	58....	38	91.6	92.8	50
29....	7	95.9	97.0	11	59....	50	97.2	98.2	3
30....	19	96.1	97.0	11					
Group					2,921	93.7	95.4	.....	.....

to percentage; the fifth is the comparative rank of each school. Median scores, reducing to a minimum the influence upon a group record of one or two very poor or very proficient spellers, are the best means of determining the relative rank of the school.¹

School No. 54, whose median is 99.0, has the highest rank. The lowest rank is median 86.4.

It may very well be questioned whether the best showing in a comparison like the present is made by the schools most nearly approaching 100 per cent. Quite possibly the schools ranking near the median may be entitled to that honor. An inordinate attention to spelling, to reading, or to any other single subject may produce a relatively high proficiency on the part of any group of pupils. But such disproportionate attention inevitably means corresponding negligence of other school activities. A nice question it is to ask how far toward perfection in any one school subject children should be forced in any grade.

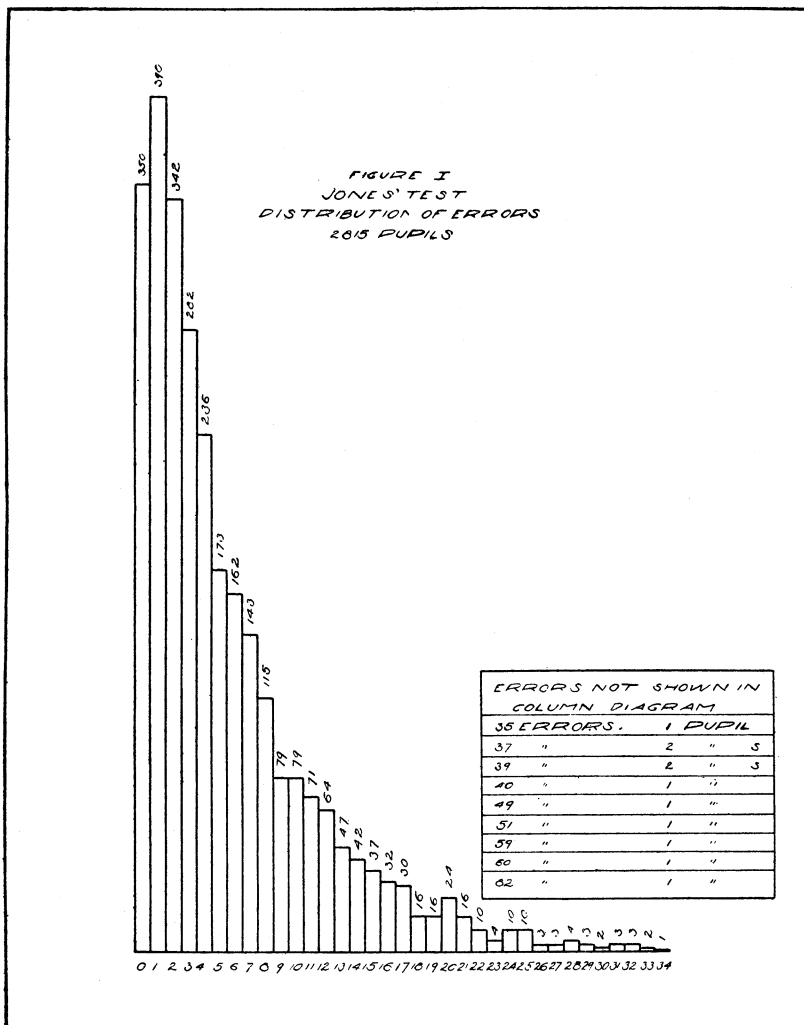
Fig. 1 shows the distribution by errors made by 2,815 pupils in the Jones Test. The lower end of the figure is not extended to include the records of eleven pupils who made 35 or more errors. Four pupils exceeded 50 errors; the largest number recorded for one pupil was 83 errors.

Each column represents a group of pupils; heights of columns are proportionate to the number of pupils represented as having made the number of errors indicated on the base line of the figure; 350 children attained a grade of 100 per cent; 1,773 pupils made 95 per cent or better; 2,351 made 90 per cent

¹For reasons explaining why the relative ranking of schools in a total measuring device like this must not be accepted without reservation, see BUCKINGHAM, *op. cit.*, pp. 3 f.

"It is undoubtedly true that the misspellings of most words are unreliable as indicating lack of spelling ability in general; and on the other hand it is probable that to spell them correctly often argues little more than that the subject can spell the particular word that he did spell. Most words are in some way special, and they are special (particularly for children) in ways that we do not realize. Very often they do not mean the same thing to one person that they do to another. They are frequently pronounced differently by different people. They suggest dissimilar imagery. They connote variously. They range from very easy to very hard; and those that are easy for some people are hard for others. Moreover, there are numerous ways of misspelling them, each indicating its own causal inco-ordination. An error may not be equal to an error even in misspelling the same word" (*ibid.*, p. 25).

or better.¹ If one is inclined to think that these ninth-grade pupils cannot spell, let him remember that a class in any



subject which shows 85 per cent of its members ranking 90 per cent or higher has done remarkably well. Certainly it is

¹ A very convenient comparison of the results of various spelling investigations may be found in J. E. W. WALLIN's, *Spelling Efficiency*, pp. 36 f.

true that longer to drill such a class as a group in spelling involves much waste for the 85 per cent of the children. Superintendent C. E. Chadsey of Chicago warns against this danger: "Able children must not waste time in useless drills upon words which they already know how to spell."¹ In short, 85 per cent of the children in this investigation might be sacrificed for the doubtful hope of bringing the other 15 per cent to something like satisfactory accomplishment.

THE AYRES SPELLING LIST

Fifty-seven schools with 111 classes and 2,800 pupils are represented in the following computations. Teachers were requested to pronounce each word twice and to allow twelve seconds for writing, not mentioning the time. The words below are arranged in the order of frequency of misspelling on the part of 2,728 of the pupils. Three words, "whether," "meant," and "beginning," are included in both the Jones and the Ayres list. It is interesting to note that approximately the same percentages of error for these words are recorded in each test. The slight advantage in favor of these three words in the Ayres list is probably due to the fact that almost invariably the Ayres Test followed the Jones Test.

The Ayres list consists of twenty-five words which eighth-grade children might be expected to spell with 84 per cent accuracy.² The words, according to Ayres, are of very nearly the same difficulty. Changing, now, the percentages of misspellings in the preceding table to percentages of accuracy, we have the following results: In respect to the first ten words of the list the children in this study fell below 84 per cent, the expectancy of the Ayres Scale; in respect to the last fifteen they exceeded the expectancy. The showing as a whole is slightly better than might be anticipated according to Ayres. Results in this study, however, do not verify Ayres's statement

¹ S. A. COURTIS, *A Tentative Course in Spelling*, p. 2.

² LEONARD P. AYRES, *A Measuring Scale for Ability in Spelling*, p. 59.

that these twenty-five words have about the same difficulty for children of the same grade. The difficulty seems to vary from 7.3 to 23.2; in terms of attainment with respect to these words the children of the present study varied from 92.7 per cent to 76.8 per cent. Certainly this is a wide range of difference.

THE AYRES SPELLING LIST
2,728 PUPILS

No.	Word	No. of Pupils Misspell- ing	Percentage of Pupils Misspell- ing	No.	Word	No. of Pupils Misspell- ing	Percentage of Pupils Misspell- ing
1..	probably	633	23.2	14..	agreement	389	14.3
2..	necessary	591	21.7	15..	responsible	378	13.9
3..	foreign	569	20.9	16..	application	377	13.9
4..	mere	553	20.3	17..	occupy	366	13.4
5..	receive	534	19.6	18..	distinguish	342	12.5
6..	finally	534	19.6	19..	relief	302	11.1
7..	meant	528	19.4	20..	earliest	293	10.4
8..	whether	494	18.1	21..	colonies	272	9.9
9..	respectfully	466	17.1	22..	material	239	8.8
10..	beginning	462	16.9	23..	citizen	201	7.4
11..	scene	420	15.4	24..	issue	199	7.3
12..	difficulty	400	14.7	25..	consideration	199	7.3
13..	circumstance	396	14.5				

Table II is the record by schools in the Ayres Test; there are shown the index number of schools, the number of pupils participating, the percentage score in terms of arithmetic mean, the median score in percentage, and the comparative ranking of the various schools. Variations in the standing of schools appear to be much more marked than in the Jones Test. In the Jones Test the highest median was 99.0 and the lowest 86.4; in the Ayres, the highest median is 98.0 by school No. 22 and the lowest is 69.5. Apparently the Ayres Test compares in difficulty with the first twenty-five words of the Jones list.

The percentage of error is approximately the same for both sets of twenty-five words.

	Group Average	Group Median
Jones list (first 25 words), 2,921 pupils	85.4	86.5
Ayres list 2,800 pupils	85.3	89.1

As further evidence that the first twenty-five in the Jones list compare equally in difficulty with the Ayres list is the fact that twelve of the Jones list are found in the Ayres Scale for Grade VIII with accuracy expectancy of 84. The difficulty of the Ayres Test as compared with the entire one hundred words in the Jones list may be represented thus:

	Group Average	Group Median
Jones list (100 words), 2,921 pupils . . .	93.7	95.4
Ayres List, 2,800 pupils	85.3	89.1

These results may be compared with the standing of six large high schools of Chicago and vicinity. In May, 1918, the Ayres Test was given by a club of high-school principals to all the classes in the schools represented in Table III by the capital letters. Approximately 1,200 ninth-grade pupils were tested. The group median for these children was 89.7; for the children of the present study, 89.3.

TABLE II

RANKING BY SCHOOLS IN THE AYRES TEST

School	Number Pupils	Average	Median	Median Rank	School	Number Pupils	Average	Median	Median Rank
1....	39	80.7	85.4	39	29....	7	89.1	85.4	39
2....	51	89.1	92.0	20	30....	16	88.0	90.0	27
3....	47	68.3	69.5	54	31....	14	91.7	95.3	10
4....	26	84.9	84.0	42	32....	88	85.3	89.2	29
5....	36	85.8	88.3	34	33....	17	85.9	92.0	20
6....	17	91.8	95.4	9	34....	6	84.7	94.0	13
7....	28	77.9	81.0	50	35....	46	81.6	86.0	38
8....	58	89.8	.....	.....	36....	31	74.5	74.7	53
9....	51	88.3	92.6	19	37....	59	82.5	87.6	36
10....	42	79.4	83.7	45	38....	58	74.9	.....	.....
11....	60	90.4	96.0	6	39....	106	85.7	91.2	25
12A...	137	87.3	92.9	17	40....	316	90.0	94.9	11
12B...	40	89.1	91.4	24	41....	25	90.6	93.6	15
13....	18	89.6	84.0	42	42....	93	84.8	88.8	31
14....	125	89.7	94.2	12	43....	62	83.1	88.8	31
15....	109	93.6	97.7	2	44....	29	76.3	80.0	51
16....	25	80.1	82.5	46	45....	40	94.2	96.7	5
17....	21	89.0	93.5	16	46....	95	86.3	88.9	30
18....	72	83.8	84.0	42	47....	27	81.1	81.3	49
19....	53	80.2	87.7	35	48....	46	84.3	88.8	31
20....	34	91.3	92.0	20	50....	27	84.6	92.0	20
21....	26	80.0	82.0	48	51....	15	69.3	76.0	52
22....	22	90.4	98.0	1	52....	22	84.9	94.0	13
23....	25	92.6	.....	.....	54....	53	93.3	96.9	4
24....	40	92.3	96.0	6	56....	51	77.1	82.3	47
25....	32	83.9	89.3	28	57....	40	91.3	95.5	8
26....	26	83.5	85.2	41	58....	36	83.3	91.1	26
27....	25	92.6	92.8	18	59....	50	93.7	97.5	3
28....	40	80.7	87.6	36	Ave.	.....	85.3	89.1	.....

TABLE III
THE AYRES TEST, SIX HIGH SCHOOLS OF CHICAGO

School	Freshmen Median	Sophomores Median	Juniors Median	Seniors Median
A.....	91.4	94.4	.....	.....
B.....	91.4	94.0	96.4	98.6
C.....	88.2	92.9	93.0	94.5
D.....	86.2	85.8	94.4	94.3
E.....	88.9	95.2	95.2	96.0
F.....	92.8	94.8	94.2	97.0
Group.....	89.7	92.7	94.7	96.1

In October, 1918, the Ayres Test was given in seven Chicago high schools, all classes, with the results shown in Table IV. Three schools, B, D, and F, included in Table III, appear again with the same index letters in Table IV. Four schools were added. Here the freshman median for the entire group was 89 as compared with 89.3 in the present study.

TABLE IV*
THE AYRES TEST, SEVEN CHICAGO HIGH SCHOOLS

SCHOOL	FRESHMEN		SOPHOMORES		JUNIORS		SENIORS	
	Average	Median	Average	Median	Average	Median	Average	Median
B.....	80.0	83	94.0	95.8	97.1	97	96.3	96.7
D.....	79.4	84	90.1	92.0	94.9	96	96.8	100.0
F.....	88.7	92	94.2	96.0	93.9	100	96.7	100.0
G.....	81.8	88	.....	.....	.....	.....	.....	.....
	Boys	Boys						
	82.5	88	.....	.....	.....	.....	.....	.....
H.....	.....	.....	91.5	92.0	93.4	96	97.3	100.0
	Girls	Girls						
	90.3	94	.....	.....	.....	.....	.....	.....
I.....	81.7	88	89.0	92.0	89.3	92	89.8	92.0
J.....	95.4	96	95.4	100.0	97.8	100	97.9	100.0
Average..	84.8	89.0	92.4	94.6	94.4	96.8	95.8	98.1

* In the calculations of this table a median of 100 was assigned whenever more than half of the pupils participating attained 100 per cent.

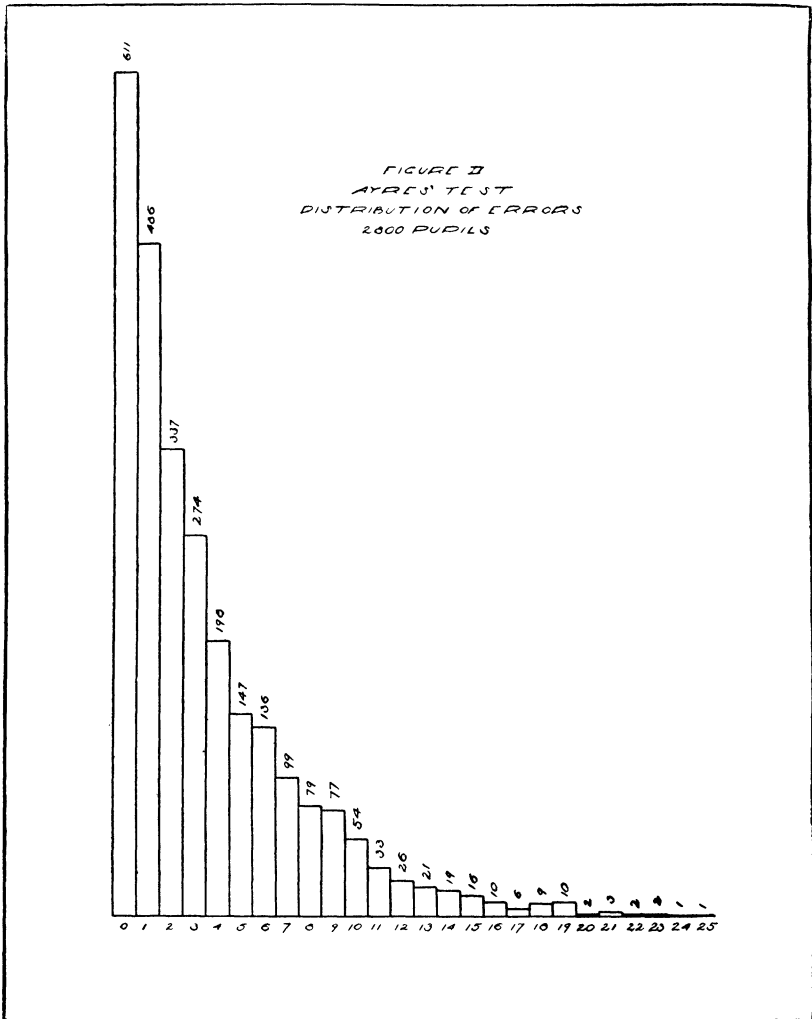


Fig. 2 is a distribution of all the errors of 2,800¹ pupils. Six hundred eleven pupils ranked 100 per cent; 1,492 pupils ranked 96 per cent or higher; and 1,906 pupils, or 68 per cent of the total, ranked 80 per cent or higher.

¹ Two schools appearing in Table II do not appear in Figure II.

THE NOYES LANGUAGE TEST

For the Noyes Language Test these directions were given:

Prepare duplicate copies; if this is not possible, write the list on the board. Explanations: (a) a comma after "Ruth" in II, 4, is optional; (b) there should be a comma after "set" in II, 5; (c) in VI, the first is an adjective clause modifying "horses"; the second, an adverbial phrase expressing means or manner; the third, a noun clause, objective complement; and the fourth, a prepositional clause expressing concession.

The test was as follows:

- I. *Insert any capitals you think necessary.*
 1. This year I am studying french, mathematics, and english literature.
 2. Are we going straight north?
 3. You live in the east, don't you?
 4. George V is a good ruler.
- II. *Punctuate the following sentences correctly.*
 1. Please John give him the marbles.
 2. Well what do you think
 3. Mr. Green the grocer has sold his store.
 4. Robert John Ruth and Elizabeth have won the prizes.
 5. Edith hoped to win the set but the rain spoiled her chance.
- III. *Tell what part of speech each underlined word is.*
 1. When the boy found that he had been shut in, he called loudly for help.
- IV. *Tell what part of the sentence each underlined word is.*
 1. The Czar was shot at daybreak.
 2. Woodrow Wilson was elected President of the United States.
 3. Father sent Mary the flowers.
- V. Are there any mistakes in the following sentences? If there are, correct them and give the reason for the change.
 1. The soldier done his work carefully.
 2. Have the girls went home?
 3. The dog had broke the platter.
 4. I have drunk the glass of water.
- VI. Give the syntax of each of the underlined *groups* of words. "We leaped to the heads of the horses, which were rearing in terror. By the blaze of the lightning, I could see that Henry and Sam were near me and were unharmed. More than once the prairie was torn up by a bolt that fell near by, but though we were blinded by the glare none of us were hurt."

Pupils were given as much time as they desired to complete the test. Scoring was made with reference to the total number of errors per school for each main division of the test. In I, Capitalization, there are 8 possible errors; in II, Punctuation, 9 possible errors; in III, Parts of Speech, 7; in IV, Function in Sentence, 7; in V, Verb Forms, 8, including both correction of the wrong forms and explanation, and in VI, Syntax of Clauses and Phrases, 4 possible errors. Standing of each school for the various divisions was determined by considering the proportion of errors actually made by all the pupils as compared with the total possible errors for the group. This gave the percentage of error; and the percentage of error in turn was changed to percentage of excellence. It must be clearly understood that the records were made by teachers in the various schools. Therefore in the table of comparisons allowance must be made for inevitable variations in strictness of grading.

THE NOYES LANGUAGE TEST
2,682 NINTH-GRADE PUPILS

SCHOOL	NUMBER OF PUPILS	ARITHMETIC MEAN FOR EACH DIVISION						ERRORS PER PUPIL ALL DIVISIONS	TOTAL SCORE	RANK
		I	II	III	IV	V	VI			
1.....	43	87.3	85.0	76.7	76.8	79.4	34.9	10.1	76.4	17
2.....	52	88.2	91.0	72.5	78.8	93.1	52.4	7.8	81.8	5
3.....	54	87.7	57.4	60.1	47.1	79.1	22.7	16.0	62.7	45
4.....	26	63.5	78.6	69.2	62.6	89.9	26.0	13.3	68.9	37
6.....	17	86.8	88.9	74.0	56.3	72.8	41.2	11.4	73.3	24
7.....	28	82.1	82.2	57.7	63.3	63.8	15.2	14.4	66.4	41
8.....	58	74.6	78.7	62.1	86.5	85.6	30.6	11.4	73.3	24
9.....	51	80.1	82.2	79.8	76.8	78.9	52.9	9.8	77.2	13
10.....	45	66.4	81.0	73.3	77.8	74.7	51.1	11.7	72.6	29
11.....	25	70.5	83.6	77.7	92.0	94.0	63.0	8.7	79.7	8
12A.....	147	71.2	76.5	55.9	60.9	55.4	36.2	16.0	62.6	46
12B.....	40	83.7	89.0	88.2	61.1	86.2	6.9	10.6	75.3	18
13.....	19	65.1	66.7	69.2	47.4	72.4	14.5	17.2	59.9	48
15.....	109	77.1	85.7	87.1	79.1	87.4	44.5	8.6	79.8	7
16.....	25	72.0	69.8	90.3	90.2	86.0	29.0	9.0	79.0	9
17.....	21	89.9	75.1	70.1	67.4	84.5	25.0	11.6	72.9	28

THE SCHOOL REVIEW

THE NOYES LANGUAGE TEST—*Continued*

2,682 NINTH-GRADE PUPILS

SCHOOL	NUM- BER OF PU- PILS	ARITHMETIC MEAN FOR EACH DIVISION						ERRORS PER PUPIL ALL DIVI- SIONS	TO- TAL SCORE	RANK
		I	II	III	IV	V	VI			
18.....	76	67.1	74.4	69.2	75.2	82.6	25.7	15.8	63.1	44
19.....	53	89.6	89.1	76.8	70.9	85.4	37.7	9.1	78.8	10
20.....	34	78.3	76.5	75.2	78.6	85.7	32.4	11.2	73.9	22
21.....	26	83.7	77.7	71.5	70.3	75.0	83.7	9.6	77.5	11
22.....	22	66.5	69.2	62.3	68.8	90.3	19.3	14.2	66.8	40
24.....	40	86.9	93.0	83.2	91.4	81.9	53.1	6.7	84.2	3
25.....	29	82.3	82.8	75.4	76.4	76.7	33.6	10.8	74.7	21
26.....	26	84.1	82.1	70.9	60.4	73.0	36.5	12.4	71.1	34
27.....	23	78.3	82.6	60.2	54.7	56.0	6.5	14.5	66.2	42
28.....	269	77.8	79.6	78.8	73.1	88.1	27.8	10.8	74.8	19
29.....	7	71.4	90.5	93.9	91.8	91.1	60.7	12.9	69.8	36
31.....	14	96.5	92.1	79.6	89.8	89.3	25.0	7.0	83.7	4
32.....	56	73.4	78.6	70.1	72.4	87.3	39.3	11.5	73.2	26
34.....	7	75.0	84.1	79.6	77.6	82.2	53.6	9.7	77.4	12
35.....	46	67.4	48.2	60.6	53.3	47.5	21.2	19.6	54.4	50
36.....	31	73.4	76.7	65.4	54.8	50.0	8.9	17.3	59.6	49
37.....	59	71.4	74.4	61.7	54.0	63.1	25.0	16.4	61.8	47
39.....	68	77.8	71.2	66.2	67.2	89.9	35.7	12.4	71.1	34
40.....	301	91.9	90.9	71.7	68.0	69.9	9.2	12.08	71.9	32
41.....	34	77.6	86.6	80.1	72.3	87.5	33.1	10.0	76.7	15
43.....	62	75.2	66.8	63.8	62.7	88.7	22.1	14.1	67.2	39
44.....	30	78.8	86.3	86.7	77.1	97.5	76.7	6.6	84.6	2
45.....	41	77.1	82.7	71.8	63.4	61.3	32.9	13.7	68.1	38
46.....	167	87.3	88.9	82.5	76.5	81.4	61.5	7.9	81.6	6
47.....	31	77.4	77.1	63.2	60.8	85.9	62.9	11.8	72.5	30
48.....	46	78.8	73.9	67.1	50.3	67.7	26.7	15.3	64.3	43
50.....	25	94.5	93.8	94.3	95.4	94.5	84.0	2.8	93.5	1
52.....	22	79.0	71.7	76.6	85.1	80.1	33.9	11.5	73.1	27
54.....	60	92.1	80.0	81.0	56.0	68.1	64.1	10.8	74.8	19
55.....	13	76.9	76.9	76.9	68.2	78.8	36.5	11.8	72.5	30
56.....	98	74.5	83.1	73.3	58.7	86.2	29.9	12.2	71.6	33
57.....	40	76.2	75.6	73.2	85.0	80.0	38.1	11.4	73.5	23
58.....	38	83.6	89.2	82.1	63.9	88.8	23.7	10.0	76.6	16
59.....	28	76.1	83.3	80.1	76.5	80.4	51.8	9.9	76.9	14
Average.....	....	78.8	80.2	75.4	70.7	80.9	38.6	11.3	73.1	....
Median.....	....	78.1	80.8	74.1	71.0	82.8	33.3	11.3	72.1	....

Concerning Section V, Verb Forms, several teachers say that their pupils frequently gave the correct form but were unable to give a satisfactory reason for the change. Most of the scorers counted an error if the reason for change was omitted. Unfortunately, the comparisons in this part of the table were not reliable; in some cases teachers whose classes rank high in V were lenient in this detail; others whose classes rank low were very strict. This inevitable lack of uniformity when so many different scorers are concerned renders comparisons in II and VI of limited value.

The record as a whole for Sections I, II, and III is not creditable. A group average of 78 and a group median of 78.1 per cent in the easy principles of I, Capitalization, II, Punctuation, and III, Parts of Speech, here set forth leads us to wonder how low the results would have been in a reasonably comprehensive test. Certainly the group as a whole knows little of VI, The Syntax of Phrases and Clauses, and is weak in V, Verb Forms. However, it is to be recalled that a large share of the errors scored in V were the omissions of correct reasons. Provided the children knew the correct form, the absence of reason for it is not especially serious.

More significant for the various schools is the wide variation in standing within the different sections. Records in VI indicate that in certain school systems ninth-grade pupils have been trained in syntax; in others they have not. A case in point is seen in the records of Schools Nos. 12A and 12B. The latter is an eighth-grade class, the only one in the test. Its record in syntax is 6.9, while 12A, a ninth-grade class in the same city, has a standing of 36.2. Significant in this respect are the records of schools Nos. 21, 40, 44, and others in Section VI. The inference is very strong either that exceeding leniency was shown in grading, or else that these classes had recently been thoroughly drilled in this phase of grammatical relations. Finally, many of the schools which receive a low rank show

that their pupils have not been drilled in syntax in the grades. That is, their poor showing here is clearly indicative of the commendable practice in the grades which avoids extensive drill in syntax of clauses and phrases.